

THE PARADOX OF REPEATING ERROR: YELLOWSTONE NATIONAL PARK FROM 1872 TO BIOSPHERE RESERVE AND BEYOND

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Abstract. Most of the renewable and nonrenewable resource problems that Yellowstone National Park faces today trace back to its creation over 100 years ago. When set aside in 1872, protection of geologic wonders was paramount. Forests and wildlife, two of the most important aspects of the park today, were recognized by Congress in an almost off-hand way. The boundaries they set failed to encompass a complete ecological unit. Later boundary changes attempted to remedy this, but it was too little, too late. When the park was designated a Biosphere Reserve a century later, it was again set aside for its geological wonders, which repeated and reaffirmed the earlier Congressional oversight. While the first designation did not consider the ecological integrity of the area, the second failed to consider that the greater Yellowstone region is likely the largest, essentially intact wild ecosystem remaining in the temperate zone of the earth. As a result of the development of the West, the greater Yellowstone area has become an ecological island, one which is managed by over two dozen separate political and administrative entities.

If the natural condition of this massive ecosystem is to survive in the future, an innovative new strategy for management must be devised. Supporters of the Biosphere Reserve concept seek to test and prove the concept of a model biosphere reserve as a practical management tool for the next generation. The designation of the greater Yellowstone ecosystem as a model international biosphere reserve may be the most efficient and politically acceptable way of preserving this area.

Yellowstone National Park was set aside as an International Biosphere Reserve in 1974 amid fanfare and considerable international attention. Today, some ten years later, a question might be asked as to what, if anything, the managers of the park are doing differently than they would be doing if Yellowstone was still not "just" a national park.

The answer, beyond Yellowstone's presence on prestigious lists and an impressive commemorative bronze plaque, is probably nothing, or at least very little. But why? Why would such an innovative positive concept, one which virtually all rational-thinking conservationists could embrace and rally around, be so ineffective in practice?

There are a number of answers, most of which are explored in depth by the authors of this proceedings. A pragmatic answer—one that ends as a potential solution—is offered here. Using Yellowstone as an example, a perspective with very real aspects emerges that has application to many of the designated biosphere reserves.

The Man and the Biosphere Program (MAB) selected Yellowstone National Park and recognized it for its geologic wonders. In doing so, MAB made the same error that Congress contributed to a century earlier. They failed to consider that the greater Yellowstone region was and remains the largest, essentially intact, wild ecosystem remaining in the temperate zone of the earth. Even if this were not true, the

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ecosystem is surely the only area within a nation prosperous enough to afford to prevent mass exploitation of such an extraordinarily valuable resource.

It is not our intent to demean either the park's superb geologic features, or the decisions of Congress, or MAB. What is important to consider is that Yellowstone's boundaries do not encompass a complete ecological unit, nor do they adequately protect the area's unique geothermal fields.

Despite the existence of the greatest display of wildlife in the contiguous 48 states, wildlife is one of those special resources that suffers from a lack of ecosystem integrity. While Congress at one point extended and modified the boundaries of Yellowstone Park, created additional park lands, and established national forests, in many respects it was too little, too late. The tremendous growth and development of the intermountain west has severed key connections between the Yellowstone ecosystem and the remaining Rocky Mountains. The greater Yellowstone region has become an ecological island. Development has and continues to encroach on those misplaced boundaries, with steady and cumulative results. Located in an area of northwestern Wyoming, southwestern Montana, and eastern Idaho, the greater Yellowstone ecosystem includes two national parks; a national parkway; five national forests answering to three U.S. Forest Service regions; two wildlife refuges; numerous parcels of state, corporate and private lands; and multiple town, city and county jurisdictions (Fig. 1). Resource decision-making is understandably often disjointed and does not look first to the care and maintenance of the ecosystem; the threats to its integrity are real. A recent publication by a group supporting the idea of treating the greater Yellowstone area as an ecosystem listed 88 threats to the viability of the ecosystem (Greater Yellowstone Coalition 1984).

THE IDEAL YELLOWSTONE ECOSYSTEM

A line can be drawn around the Yellowstone ecosystem which defines a unit that is both a geologic protectorate and a logical biogeographical province. This unit transcends political and jurisdictional boundaries (Fig. 2).

Because of limitations in our knowledge, however, the precise boundaries of this ecosystem must remain vague. What is clear, however, is that instead of the 2.2 million acres that make up Yellowstone National Park, the Yellowstone ecosystem is an area that may encompass over 6 million acres of wild and semi-wild lands.

Topographically, the area is comprised of nine major mountain ranges, with the vast volcanic Yellowstone plateau at the heart. Three of our nation's major river systems headwater within the unit and have helped shape and feed an amalgam of plant communities from each of the major biomes found in western North America.

The combination of a diverse plant world, varied and rugged terrain, assorted climatic effects, and the remote, often hostile nature of the location has created and even helped protect the ecosystem's varied fauna. The more well-known species found in abundance within the ecosystem are not unique to this area, though some, like the grizzly bear and trumpeter swan, are rare outside of the ecosystem. Other species, such as the elk and the bison, once reduced to meager populations, exist today in robust numbers.

But the concept of the ideal ecosystem must fall back on the original and foremost unique feature of the area. Yellowstone's geysers, hot springs, and fumeroles—the



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FIGURE 1. MAP OF THE GREATER YELLOWSTONE REGION SHOWING THE MOST PROMINENT POLITICAL JURISDICTIONS.

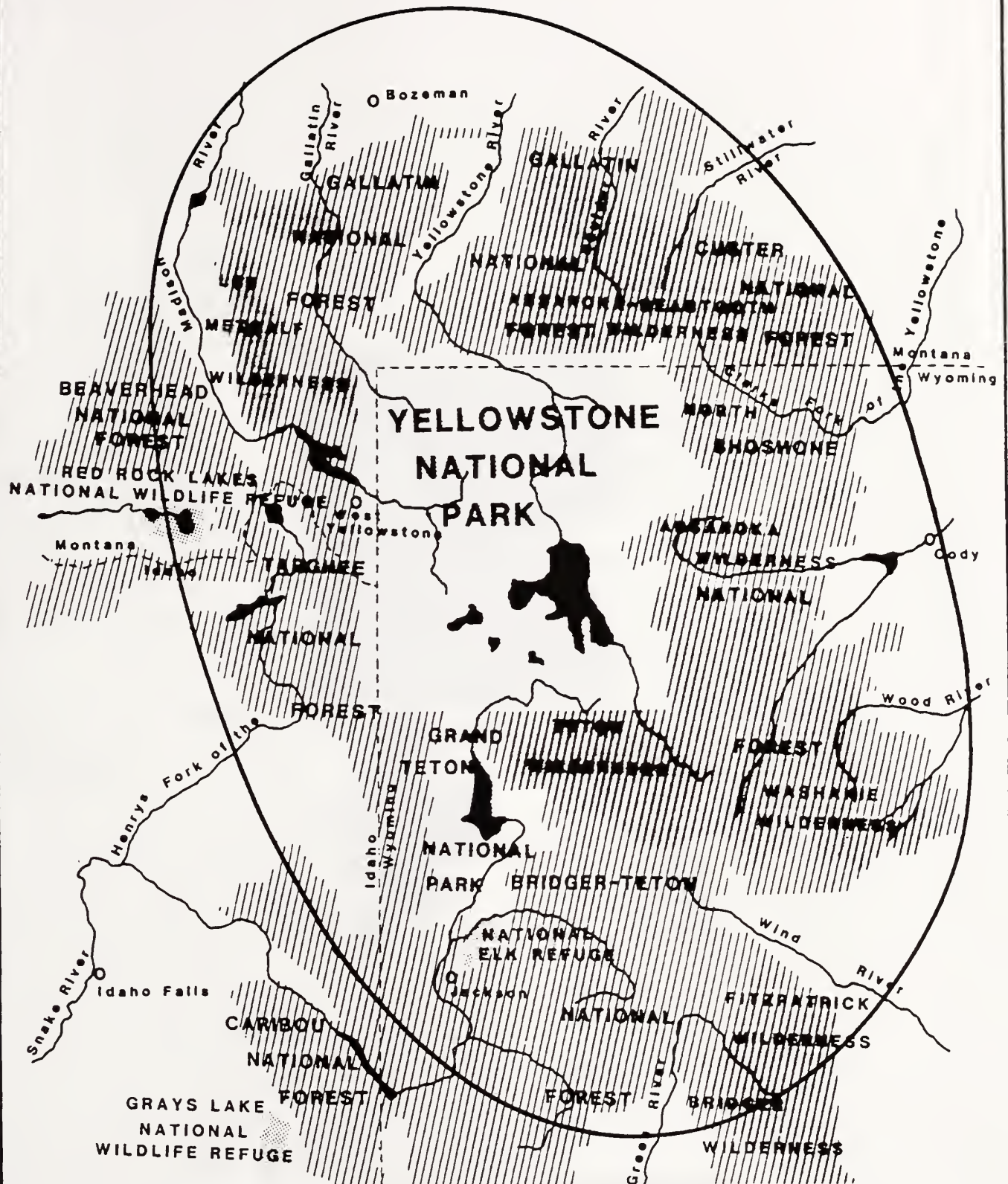
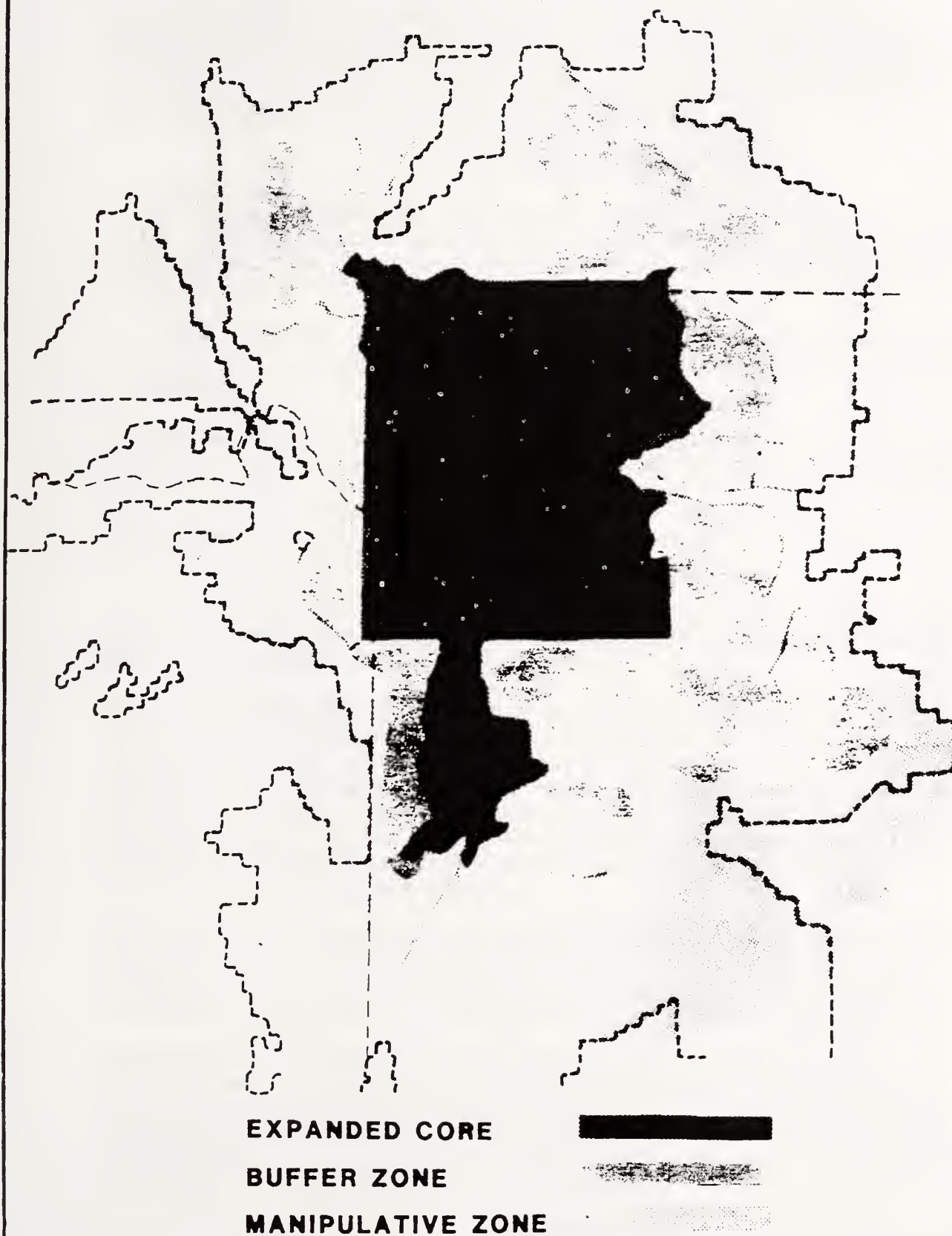


FIGURE 2. AN APPROXIMATION OF
THE GREATER YELLOWSTONE ECOSYSTEM.



**FIGURE 3. THE MODEL YELLOWSTONE ECOSYSTEM
BIOSPHERE RESERVE.**

greatest collection of geothermal features in the world today--illustrate the ecosystem concept best. There is mounting evidence that the aquifer feeding Yellowstone's geothermal features has its origins outside the park. This, combined with the potential exploitation of the known geothermal resource areas adjacent to Yellowstone, shows why the recognition of this ecosystem is so important.

A POTENTIAL SOLUTION

Resource managers within the ecosystem do communicate with each other and progress on that front is being made. One only needs to look at the interagency teams seeking to aid the plight of the grizzly bear, trumpeter swan, and the Jackson Hole elk herd to see hopeful signs.

Yet, if the ecological integrity of this unique area is to survive into the next century, an innovative new strategy for coordination and integrated resource management must be devised.

In this proceedings, Eidsvik thoroughly explores the past failings and the future of the Biosphere Reserve Program. He and other supporters of the concept suggest that we need to test and prove the idea of a model biosphere reserve as a practical management tool for the next generation. The model reserve would include a core natural zone, a buffer zone, and a zone of manipulation or experimentation. This concept seeks to test humanity's ability to live in harmony with its environment.

The idea of integrated management is an exciting one; one which might have the potential to work under the right circumstances, in the right place, and with the whole-hearted support of the political entities.

The greater Yellowstone ecosystem may be an ideal unit to test the model biosphere reserve. The unfragmented, oval shape of the ecosystem is, in itself, a persuasive beginning point (Fig. 3). Within it, the present Yellowstone and Grand Teton National Parks and John D. Rockefeller Parkway become the expanded core natural zone. The established and proposed wilderness areas in national forests, the Island Park Geothermal Resource Area, plus seasonal wildlife ranges become the buffer zone, and multiple-use national forest lands plus corporate and private lands become the manipulative or experimentation areas.

The most obvious advantage of this approach, beyond the fact that we have finally recognized the ecosystem as an ecosystem, is that it would probably be palatable to all of the special interests and jurisdictions. The recognition that no lands would necessarily change political or administrative jurisdiction is a decided advantage.

The managers of this nation's national parks, including Yellowstone, can no longer afford to stand by in what Eidsvik terms "splendid isolation." There is an absolute need for a mechanism to foster cooperation and integration with surrounding land managers. Improved research and monitoring efforts and land and people management are the obvious rewards. But the largest one of all would be a reasonable expectation that these ecosystems would survive into the next century.

LITERATURE CITED

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